**Flooding pre-post test key.doc**

*(that test should be made before the flooding exercises; if you don’t know the answer to any question then mark it with a dash, x, or the comment “don’t know”)*

Name *(may be the nickname)* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**1. What activities did you take part in? \***

1. Easy field measurements
2. Online calculations
3. None

*any answer is correct*

**2. Explain such concepts as a cross section, hydraulic radius, the wetted perimeter of the cross-section.**

*We do not expect a book definition, it can be a non-technical description (“in their own words”), examples of answers:*

* *cross-section:*
* *the section of a stream is the section normal to the mean direction of flow bounded by the free surface and wetted perimeter of the stream.*
* *the point / line in which we perform hydrological measurements.*
* *hydraulic radius:*
* *the hydraulic radius is defined as the ratio of the cross-sectional area of the flow channel to the length of the wetted perimeter of the flow channel in contact with the fluid.*
* *Rh = A/L; A – flow area, L – wetted perimeter.*
* *the wetted perimeter of the cross-section:*
* *the wetted perimeter is the perimeter of the cross-sectional area that is “wet”.*
* *the wetted perimeter is defined as the surface of the channel bottom and sides in direct contact with the aqueous body.*

**3. Describe how to determine parameters such as the width of the river for the analysed cross-section, maximum water depth in the river, average water velocity, maximum capacity of the channel.**

*We do not expect a book definition, it can be a non-technical description (“in their own words”), examples of answers:*

* *width of the river:*
* *apply a long measuring tape from one edge to the other.*
* *stretch a rope or stick from one edge to the other, mark the beginning and end, and then measure this distance.*
* *maximum water depth in the river:*
* *find the highest point in the cross-section, above which the water will begin to spill over the banks, then measure the distance from that point to the bottom of the river in that cross-section.*
* *measure the height of the maximum area that can be covered by water in the cross-section.*
* *average water velocity:*
* *make measurements of the velocity at several points of the cross-section, on this basis calculate the flow rate (e.g., Culman’s method) and divide it by the cross-sectional area.*
* *make measurements of the velocity at a hydrometric vertical, prepare a velocity curve, calculate an average velocity.*
* *calculate from Manning’s formula.*
* *maximum capacity of the channel:*
* *calculate from Manning’s formula, based on maximum water depth in characteristic cross-section.*
* *calculate the flow rate for the maximum water depth for all structures like a culvert, bridges (for flow below the bridge), etc.*

**4. How to create a local measurement and observation section?**

*We do not expect a book definition, it can be a non-technical description (“in their own words”), examples of answers:*

* *find a nice place, describe it and start to make there a regular observation.*
* *prepare and mark a cross-section (straight line, perpendicular to the river), measure the geometry, measure maximum water level, calculate maximum capacity of the channel, make regular observations.*